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Multi-Higgs production in vector boson scattering

Friday, 1 December 2023 10:10 (15 minutes)

We present an effective field theory study of WW scattering into two, three and four Higgs bosons in the final state. We consider the general HEFT approach and then particularize it for SMEFT scenarios. We make use of the equivalence theorem and improve previous results on $WW \rightarrow nh$ cross sections, showing several important cancellations and simplifications which allows us to display these amplitudes in a much more compact form. We show that for a growing number of Higgs bosons in the final state, SMEFT leads to an important suppression of cross sections with a large number of Higgses, while this does not happen for general HEFT low-energy theories (which do not accept a SMEFT description). We provide some numerical estimates of these multi-Higgs cross sections based on current experimental bounds.

You are

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